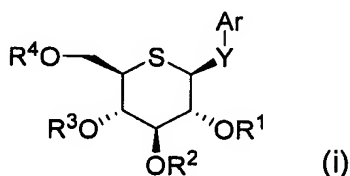


## AMENDMENTS TO THE CLAIMS

**This listing of claims will replace all prior versions and listings of claims in the application:**

### **LISTING OF CLAIMS:**

**1. (previously presented):** A 5-thio- $\beta$ -D-glucopyranoside compound of the following formula or a pharmaceutically acceptable salt thereof or a hydrate thereof:



wherein

Y represents -O- or -NH-,

$R^1$ ,  $R^2$ ,  $R^3$  and  $R^4$ , which may be the same or different, each represent a hydrogen atom, a  $C_{2-10}$  acyl group, a  $C_{7-10}$  aralkyl group, a  $C_{2-6}$  alkoxy carbonyl group, a  $C_{1-6}$  alkoxy- $C_{2-10}$  acyl group or a  $C_{1-6}$  alkoxy- $C_{2-6}$  alkoxy carbonyl group,

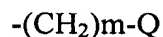
Ar represents an aryl group substituted with  $-X-A^1$ , in which the aryl group may further be substituted with the same or different 1 to 4 substituents selected from:

a halogen atom;

a hydroxyl group;

a  $C_{1-6}$  alkyl group which may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group;

a group represented by the formula:



wherein m represents an integer of 0 to 4 and Q represents a formyl group, an amino group, a nitro group, a cyano group, a carboxyl group, a sulfonic acid group, a C<sub>1-6</sub> alkoxy group which may be substituted with 1 to 4 halogen atoms, a C<sub>1-6</sub> alkoxy-C<sub>1-6</sub> alkoxy group, a C<sub>2-10</sub> acyloxy group, a C<sub>2-10</sub> acyl group, a C<sub>2-6</sub> alkoxycarbonyl group, a C<sub>1-6</sub> alkylthio group, a C<sub>1-6</sub> alkylsulfinyl group, a C<sub>1-6</sub> alkylsulfonyl group, -NHC(=O)H, a C<sub>2-10</sub> acylamino group, a C<sub>1-6</sub> alkylsulfonylamino group, a C<sub>1-6</sub> alkylamino group, an N,N-di(C<sub>1-6</sub> alkyl)amino group, a carbamoyl group, an N-(C<sub>1-6</sub> alkyl)aminocarbonyl group, or an N,N-di(C<sub>1-6</sub> alkyl)aminocarbonyl group; or

a C<sub>3-7</sub> cycloalkyl group, a C<sub>3-7</sub> cycloalkyloxy group, an aryl group, a C<sub>7-10</sub> aralkyl group, an aryloxy group, a C<sub>7-10</sub> aralkyloxy group, a C<sub>7-10</sub> aralkylamino group, a heteroaryl group, or a 4- to 6-membered heterocycloalkyl group, provided that each of these groups may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom, a hydroxyl group, a C<sub>1-6</sub> alkyl group and a C<sub>1-6</sub> alkoxy group,

X represents -(CH<sub>2</sub>)<sub>n</sub>-, -CO(CH<sub>2</sub>)<sub>n</sub>-, -CH(OH)(CH<sub>2</sub>)<sub>n</sub>-, -O-(CH<sub>2</sub>)<sub>n</sub>-, -CONH(CH<sub>2</sub>)<sub>n</sub>-, -NHCO(CH<sub>2</sub>)<sub>n</sub>-, wherein n represents an integer of 0 to 3, -COCH=CH-, -S- or -NH-, and

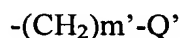
A<sup>1</sup> represents an aryl group, a heteroaryl group or a 4- to 6-membered heterocycloalkyl group, each of which may be substituted with the same or different 1 to 4 substituents selected from:

a halogen atom;

a hydroxyl group;

a C<sub>1-6</sub> alkyl group which may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group;

a group represented by the formula:

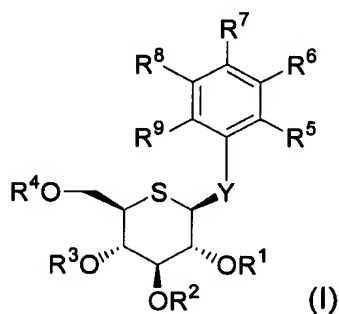


wherein m' represents an integer of 0 to 4 and Q' represents a formyl group, an amino group, a nitro group, a cyano group, a carboxyl group, a sulfonic acid group, a C<sub>1-6</sub> alkoxy group which

may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group, a C<sub>1-6</sub> alkoxy-C<sub>1-6</sub> alkoxy group, a C<sub>2-10</sub> acyloxy group, a C<sub>2-10</sub> acyl group, a C<sub>2-6</sub> alkoxycarbonyl group, a C<sub>1-6</sub> alkylthio group, a C<sub>1-6</sub> alkylsulfinyl group, a C<sub>1-6</sub> alkylsulfonyl group, -NHC(=O)H, a C<sub>2-10</sub> acylamino group, a C<sub>1-6</sub> alkylsulfonylamino group, a C<sub>1-6</sub> alkylamino group, an N,N-di(C<sub>1-6</sub> alkyl)amino group, a carbamoyl group, an N-(C<sub>1-6</sub> alkyl)aminocarbonyl group, or an N,N-di(C<sub>1-6</sub> alkyl)aminocarbonyl group; or

a C<sub>3-7</sub> cycloalkyl group, a C<sub>3-7</sub> cycloalkyloxy group, an aryl group, a C<sub>7-10</sub> aralkyl group, an aryloxy group, a C<sub>7-10</sub> aralkyloxy group, a C<sub>7-10</sub> aralkylamino group, a heteroaryl group, or a 4- to 6-membered heterocycloalkyl group, provided that each of these groups may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom, a hydroxyl group, a C<sub>1-6</sub> alkyl group and a C<sub>1-6</sub> alkoxy group.

**2. (previously presented):** A 5-thio-β-D-glucopyranoside compound of the following formula or a pharmaceutically acceptable salt thereof or a hydrate thereof:



wherein

Y represents -O- or -NH-,

R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup> and R<sup>4</sup>, which may be the same or different, each represent a hydrogen atom, a C<sub>2-10</sub> acyl group, a C<sub>7-10</sub> aralkyl group, a C<sub>2-6</sub> alkoxycarbonyl group, a C<sub>1-6</sub> alkoxy-C<sub>2-10</sub> acyl group or a C<sub>1-6</sub> alkoxy-C<sub>2-6</sub> alkoxycarbonyl group, and

at least one of  $R^5$ ,  $R^6$ ,  $R^7$ ,  $R^8$  and  $R^9$  represents  $-X-A^1$  and the other, which may be the same or different, each represent:

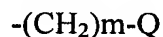
a hydrogen atom;

a halogen atom;

a hydroxyl group;

a  $C_{1-6}$  alkyl group which may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group;

a group represented by the formula:



wherein m represents an integer of 0 to 4 and Q represents a formyl group, an amino group, a nitro group, a cyano group, a carboxyl group, a sulfonic acid group, a  $C_{1-6}$  alkoxy group which may be substituted with 1 to 4 halogen atoms, a  $C_{1-6}$  alkoxy- $C_{1-6}$  alkoxy group, a  $C_{2-10}$  acyloxy group, a  $C_{2-10}$  acyl group, a  $C_{2-6}$  alkoxycarbonyl group, a  $C_{1-6}$  alkylthio group, a  $C_{1-6}$  alkylsulfinyl group, a  $C_{1-6}$  alkylsulfonyl group,  $-NHC(=O)H$ , a  $C_{2-10}$  acylamino group, a  $C_{1-6}$  alkylsulfonylamino group, a  $C_{1-6}$  alkylamino group, an N,N-di( $C_{1-6}$  alkyl)amino group, a carbamoyl group, an N-( $C_{1-6}$  alkyl)aminocarbonyl group, or an N,N-di( $C_{1-6}$  alkyl)aminocarbonyl group; or

a  $C_{3-7}$  cycloalkyl group, a  $C_{3-7}$  cycloalkyloxy group, an aryl group, a  $C_{7-10}$  aralkyl group, an aryloxy group, a  $C_{7-10}$  aralkyloxy group, a  $C_{7-10}$  aralkylamino group, a heteroaryl group, or a 4- to 6-membered heterocycloalkyl group, provided that each of these groups may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom, a hydroxyl group, a  $C_{1-6}$  alkyl group and a  $C_{1-6}$  alkoxy group,

X represents  $-(CH_2)_n-$ ,  $-CO(CH_2)_n-$ ,  $-CH(OH)(CH_2)_n-$ ,  $-O-(CH_2)_n-$ ,  $-CONH(CH_2)_n-$ ,  $-NHCO(CH_2)_n-$ , wherein n represents an integer of 0 to 3,  $-COCH=CH-$ ,  $-S-$  or  $-NH-$ , and

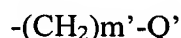
A<sup>1</sup> represents an aryl group, a heteroaryl group or a 4- to 6-membered heterocycloalkyl group, each of which may be substituted with the same or different 1 to 4 substituents selected from:

a halogen atom;

a hydroxyl group;

a C<sub>1-6</sub> alkyl group which may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group;

a group represented by the formula:



wherein m' represents an integer of 0 to 4 and Q' represents a formyl group, an amino group, a nitro group, a cyano group, a carboxyl group, a sulfonic acid group, a C<sub>1-6</sub> alkoxy group which may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group, a C<sub>1-6</sub> alkoxy-C<sub>1-6</sub> alkoxy group, a C<sub>2-10</sub> acyloxy group, a C<sub>2-10</sub> acyl group, a C<sub>2-6</sub> alkoxycarbonyl group, a C<sub>1-6</sub> alkylthio group, a C<sub>1-6</sub> alkylsulfinyl group, a C<sub>1-6</sub> alkylsulfonyl group, -NHC(=O)H, a C<sub>2-10</sub> acylamino group, a C<sub>1-6</sub> alkylsulfonylamino group, a C<sub>1-6</sub> alkylamino group, an N,N-di(C<sub>1-6</sub> alkyl)amino group, a carbamoyl group, an N-(C<sub>1-6</sub> alkyl)aminocarbonyl group, or an N,N-di(C<sub>1-6</sub> alkyl)aminocarbonyl group; or

a C<sub>3-7</sub> cycloalkyl group, a C<sub>3-7</sub> cycloalkyloxy group, an aryl group, a C<sub>7-10</sub> aralkyl group, an aryloxy group, a C<sub>7-10</sub> aralkyloxy group, a C<sub>7-10</sub> aralkylamino group, a heteroaryl group, or a 4- to 6-membered heterocycloalkyl group, provided that each of these groups may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom, a hydroxyl group, a C<sub>1-6</sub> alkyl group and a C<sub>1-6</sub> alkoxy group.

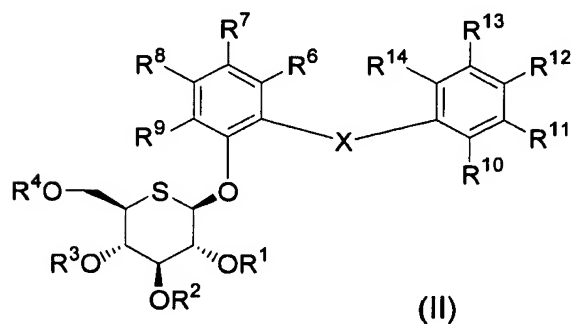
**3. (original):** The 5-thio-β-D-glucopyranoside compound according to claim 2, wherein Y is -O-, or a pharmaceutically acceptable salt thereof or a hydrate thereof.

4. **(previously presented):** The 5-thio- $\beta$ -D-glucopyranoside compound according to claim 2, wherein  $R^5$  is  $-X-A^1$ , or a pharmaceutically acceptable salt thereof or a hydrate thereof.

5. **(previously presented):** The 5-thio- $\beta$ -D-glucopyranoside compound according to claim 4, wherein X is  $-(CH_2)_n-$ , wherein n represents an integer of 0 to 3, or a pharmaceutically acceptable salt thereof or a hydrate thereof.

6. **(previously presented):** The 5-thio- $\beta$ -D-glucopyranoside compound according to claim 4, wherein X is  $-CO(CH_2)_n-$ , wherein n represents an integer of 0 to 3, or a pharmaceutically acceptable salt thereof or a hydrate thereof.

7. **(previously presented):** A 5-thio- $\beta$ -D-glucopyranoside compound of the following formula or a pharmaceutically acceptable salt thereof or a hydrate thereof:



wherein

X represents  $-(CH_2)_n-$ ,  $-CO(CH_2)_n-$ ,  $-CH(OH)(CH_2)_n-$ ,  $-O-(CH_2)_n-$ ,  $-CONH(CH_2)_n-$ ,  $-NHCO(CH_2)_n-$ , wherein n represents an integer of 0 to 3,  $-COCH=CH-$ ,  $-S-$  or  $-NH-$ ,

$R^1$ ,  $R^2$ ,  $R^3$  and  $R^4$ , which may be the same or different, each represent a hydrogen atom, a  $C_{2-10}$  acyl group, a  $C_{7-10}$  aralkyl group, a  $C_{2-6}$  alkoxycarbonyl group, a  $C_{1-6}$  alkoxy- $C_{2-10}$  acyl group or a  $C_{1-6}$  alkoxy- $C_{2-6}$  alkoxycarbonyl group,

$R^6$ ,  $R^7$ ,  $R^8$  and  $R^9$ , which may be the same or different, each represent:

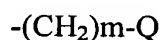
a hydrogen atom;

a halogen atom;

a hydroxyl group;

a  $C_{1-6}$  alkyl group which may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group;

a group represented by the formula:



wherein m represents an integer of 0 to 4 and Q represents a formyl group, an amino group, a nitro group, a cyano group, a carboxyl group, a sulfonic acid group, a  $C_{1-6}$  alkoxy group which may be substituted with 1 to 4 halogen atoms, a  $C_{1-6}$  alkoxy- $C_{1-6}$  alkoxy group, a  $C_{2-10}$  acyloxy group, a  $C_{2-10}$  acyl group, a  $C_{2-6}$  alkoxycarbonyl group, a  $C_{1-6}$  alkylthio group, a  $C_{1-6}$  alkylsulfinyl group, a  $C_{1-6}$  alkylsulfonyl group,  $-NHC(=O)H$ , a  $C_{2-10}$  acylamino group, a  $C_{1-6}$  alkylsulfonylamino group, a  $C_{1-6}$  alkylamino group, an N,N-di( $C_{1-6}$  alkyl)amino group, a carbamoyl group, an N-( $C_{1-6}$  alkyl)aminocarbonyl group, or an N,N-di( $C_{1-6}$  alkyl)aminocarbonyl group; or

a  $C_{3-7}$  cycloalkyl group, a  $C_{3-7}$  cycloalkyloxy group, an aryl group, a  $C_{7-10}$  aralkyl group, an aryloxy group, a  $C_{7-10}$  aralkyloxy group, a  $C_{7-10}$  aralkylamino group, a heteroaryl group, or a 4- to 6-membered heterocycloalkyl group, provided that each of these groups may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom, a hydroxyl group, a  $C_{1-6}$  alkyl group and a  $C_{1-6}$  alkoxy group, and

$R^{10}$ ,  $R^{11}$ ,  $R^{12}$ ,  $R^{13}$  and  $R^{14}$ , which may be the same or different, each represent:

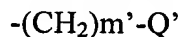
a hydrogen atom;

a halogen atom;

a hydroxyl group;

a C<sub>1-6</sub> alkyl group which may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group;

a group represented by the formula:



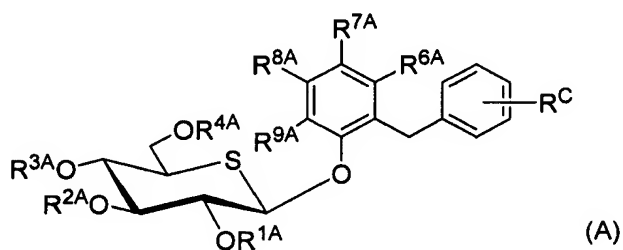
wherein m' represents an integer of 0 to 4 and Q' represents a formyl group, an amino group, a nitro group, a cyano group, a carboxyl group, a sulfonic acid group, a C<sub>1-6</sub> alkoxy group which may be substituted with 1 to 4 halogen atoms, a C<sub>1-6</sub> alkoxy-C<sub>1-6</sub> alkoxy group, a C<sub>2-10</sub> acyloxy group, a C<sub>2-10</sub> acyl group, a C<sub>2-6</sub> alkoxycarbonyl group, a C<sub>1-6</sub> alkylthio group, a C<sub>1-6</sub> alkylsulfinyl group, a C<sub>1-6</sub> alkylsulfonyl group, -NHC(=O)H, a C<sub>2-10</sub> acylamino group, a C<sub>1-6</sub> alkylsulfonylamino group, a C<sub>1-6</sub> alkylamino group, an N,N-di(C<sub>1-6</sub> alkyl)amino group, a carbamoyl group, an N-(C<sub>1-6</sub> alkyl)aminocarbonyl group, or an N,N-di(C<sub>1-6</sub> alkyl)aminocarbonyl group; or

a C<sub>3-7</sub> cycloalkyl group, a C<sub>3-7</sub> cycloalkyloxy group, an aryl group, a C<sub>7-10</sub> aralkyl group, an aryloxy group, a C<sub>7-10</sub> aralkyloxy group, a C<sub>7-10</sub> aralkylamino group, a heteroaryl group, or a 4- to 6-membered heterocycloalkyl group, provided that each of these groups may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom, a hydroxyl group, a C<sub>1-6</sub> alkyl group and a C<sub>1-6</sub> alkoxy group.

**8. (original):** The 5-thio-β-D-glucopyranoside compound according to claim 7, wherein X is -CH<sub>2</sub>-, or a pharmaceutically acceptable salt thereof or a hydrate thereof.

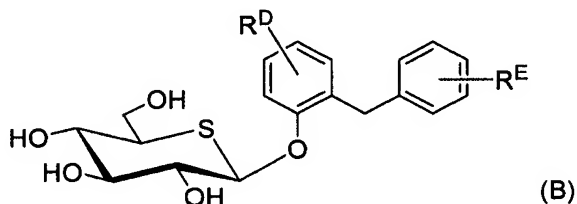
**9. (original):** The 5-thio-β-D-glucopyranoside compound according to claim 7, wherein X is -O- or -NH-, or a pharmaceutically acceptable salt thereof or a hydrate thereof.

**10. (previously presented):** A 5-thio- $\beta$ -D-glucopyranoside compound of the following formula or a pharmaceutically acceptable salt thereof:



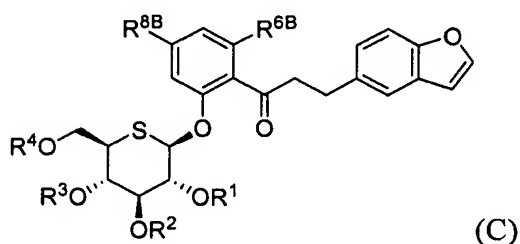
wherein  $R^{6A}$  to  $R^{9A}$ , which may be the same or different, each represent a hydrogen atom, a halogen atom, a  $C_{1-6}$  alkyl group, a  $C_{1-6}$  alkoxy group, a  $C_{1-6}$  alkoxy- $C_{1-6}$  alkoxy group, a carboxyl group, a  $C_{2-6}$  alkoxy carbonyl group, a hydroxyl group or a hydroxy- $C_{1-4}$  alkyl group,  $R^C$  represents a hydrogen atom, a halogen atom, a  $C_{1-6}$  alkyl group, a  $C_{1-6}$  alkoxy group, a hydroxy- $C_{1-4}$  alkyl group, a halogen-substituted  $C_{1-6}$  alkyl group or a  $C_{1-6}$  alkylthio group,  $R^{4A}$  represents a hydrogen atom, a  $C_{2-6}$  alkoxy carbonyl group or a  $C_{2-6}$  alkanoyl group, and  $R^{1A}$  to  $R^{3A}$ , which may be the same or different, each represent a hydrogen atom, a  $C_{2-8}$  alkanoyl group or a benzoyl group.

**11. (previously presented):** A 5-thio- $\beta$ -D-glucopyranoside compound of the following formula or a pharmaceutically acceptable salt thereof:



wherein  $R^D$  represents a hydrogen atom, a halogen atom, a  $C_{1-6}$  alkyl group or a hydroxy- $C_{1-4}$  alkyl group, and  $R^E$  represents a hydrogen atom, a halogen atom, a  $C_{1-6}$  alkyl group, a  $C_{1-6}$  alkoxy group or a hydroxy- $C_{1-4}$  alkyl group.

**12. (previously presented):** A 5-thio- $\beta$ -D-glucopyranoside compound of the following formula or a pharmaceutically acceptable salt thereof or a hydrate thereof:



wherein  $R^1$ ,  $R^2$ ,  $R^3$  and  $R^4$ , which may be the same or different, each represent a hydrogen atom, a  $C_{2-10}$  acyl group, a  $C_{7-10}$  aralkyl group, a  $C_{2-6}$  alkoxycarbonyl group, a  $C_{1-6}$  alkoxy- $C_{2-10}$  acyl group or a  $C_{1-6}$  alkoxy- $C_{2-6}$  alkoxycarbonyl group,  $R^{6B}$  represents a hydrogen atom, a halogen atom, a hydroxyl group, a  $C_{2-10}$  acyloxy group, or a  $C_{1-6}$  alkyl or  $C_{1-6}$  alkoxy group which may be substituted with 1 to 4 halogen atoms, and  $R^{8B}$  represents a hydrogen atom, a halogen atom or a  $C_{1-6}$  alkyl group which may be substituted with 1 to 4 halogen atoms.

**13. (original):** A pharmaceutical preparation, which comprises the 5-thio- $\beta$ -D-glucopyranoside compound according to any one of claims 1 to 12 or a pharmaceutically acceptable salt thereof or a hydrate thereof as an active ingredient.

**14. (withdrawn-currently amended):** A method of treating a condition treatable by inhibiting sodium-dependent glucose transporter 2 activity said method comprising administering to a subject in need of treatment a pharmaceutically effective amount of the

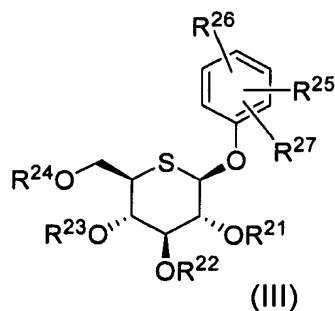
~~pharmaceutical preparation according to claim 13~~5-thio- $\beta$ -D-glucopyranoside compound according to claim 1, a pharmaceutically acceptable salt thereof or a hydrate thereof.

**15. (withdrawn):** The method according to claim 14, wherein the condition is diabetes, diabetes-related diseases or diabetic complications.

**16. (original):** A pharmaceutical preparation, which comprises the 5-thio- $\beta$ -D-glucopyranoside compound according to any one of claims 1 to 12 or a pharmaceutically acceptable salt thereof or a hydrate thereof, in combination with at least one drug selected from the group consisting of an insulin sensitizer selected from the group consisting of a PPAR $\gamma$  agonist; a PPAR $\alpha/\gamma$  agonist; a PPAR $\delta$  agonist; and a PPAR $\alpha/\gamma/\delta$  agonist, a glycosidase inhibitor, a biguanide, an insulin secretagogue, an insulin formulation and a dipeptidyl peptidase IV inhibitor.

**17. (original):** A pharmaceutical preparation, which comprises the 5-thio- $\beta$ -D-glucopyranoside compound according to any one of claims 1 to 12 or a pharmaceutically acceptable salt thereof or a hydrate thereof, in combination with at least one drug selected from the group consisting of a hydroxymethylglutaryl coenzyme A reductase inhibitor, a fibrate, a squalene synthase inhibitor, an acyl-coenzyme A:cholesterol acyltransferase inhibitor, a low-density lipoprotein receptor promoter, a microsomal triglyceride transfer protein inhibitor and an anorectic.

**18. (currently amended):** A 5-thio- $\beta$ -D-glucopyranoside compound of the following formula or a pharmaceutically acceptable salt thereof or a hydrate thereof:



wherein

$R^{21}$ ,  $R^{22}$ ,  $R^{23}$  and  $R^{24}$ , which may be the same or different, each represent a hydrogen atom or a  $C_{2-10}$  acyl group,

$R^{25}$  represents an amino group, a  $C_{2-6}$  alkanoyl group, a carboxyl group, a formyl group, a  $C_{2-6}$  alkoxycarbonyl group or a hydroxyl group, and

$R^{26}$  and  $R^{27}$ , which may be the same or different, each represent a hydrogen atom, a halogen atom, a hydroxyl group, a  $C_{1-6}$  alkyl group which may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group, or a  $C_{1-6}$  alkoxy group which may be substituted with 1 to 4 halogen atoms.